SYSTEM AND METHOD FOR INCREASING THE ROLL OFFSET OPERATING RANGE FOR A SPACECRAFT

ABSTRACT OF THE DISCLOSURE

One embodiment of the present invention relates to a method for increasing the roll offset operating range for a spacecraft using an earth sensor operating in a single scan mode. In accordance with this embodiment, the method comprises moving the spacecraft to a first roll position, which has a roll angle that will cause the earth sensor to have a desired standard chord. Next, the earth sensor is switched to single scan mode by deselecting one of the earth sensor scans. By switching the earth sensor to a single scan mode, the earth sensor standard chord is locked at or near the desired standard chord. After the desired standard chord is set, the spacecraft is moved to a second roll position, which is a desired roll offset operating position for the spacecraft. Finally, the earth sensor roll output (generating using the single scan mode) is used to calculate the spacecraft roll at the roll offset operating position.